

Public Policy 712
Causal Inference in Education Policy Research

Brian A. Jacob
bajacob@umich.edu
Weill Hall, Room 5124

Christina Weiland
weilandc@umich.edu
School of Education, Room 4049

Course Meeting Time and Location:

M/W: 2:30-4:00pm

Weill Hall 1220

Office hours: By appointment

Overview

This course examines several key policy areas in the realm of early learning and K-12 education. The two primary goals of the course are (1) to familiarize students with the arguments and evidence relating to important policies and/or interventions and (2) to provide students with the analytic framework and skills necessary to evaluate education (or other public) policies in general. Specific policy topics include early learning experiences, center-based early childhood programs, parental involvement in early childhood learning, preschool, test-based accountability (i.e., high-stakes testing, including No Child Left Behind), teacher effectiveness, and virtual schooling. Specific methodological techniques include randomized-control trials (RCT), regression discontinuity analysis (RD), comparative interrupted time series (CITS), Empirical Bayes, and a brief intro to several topics in psychometrics.

Prerequisites

Knowledge of introductory statistics (e.g., Stats 250, PP 529, SOE 793, or equivalent) and regression analysis (e.g., Stats 413, PP 639, SOE 794 or 795, or equivalent) are required for this course. For those students who are interested, a good refresher for statistics and regression analysis can be found in the following texts:

Rossi, Peter H., Freeman, Howard E., and Lipsey, Mark W. *Evaluation: A Systematic Approach*. Sixth Edition. Thousand Oaks, CA: Sage Publications, 1999. Chapter 7 (pp: 235-278).

Orr, Larry (1999). *Social Experiments*. Sage Publications, Thousand Oaks, CA. (Chapter 1, pp 1-30).

Schneider, B., Carnoy, M., Kilpatrick, J., Schmidt, W. H., & Shavelson, R. J. (2007). *Estimating causal effects using experimental and observational designs*. Washington, DC: American Educational Research Association. Chapter 3 (pp. 38-55).

Stock and Watson, *Introduction to Econometrics* (syllabus references are to 3rd edition, but older editions contain virtually identical content).

Course Requirements and Grading

General Class Participation (10%) – Students are expected to attend class regularly and to have read the assigned material prior to class. Because this is a discussion-based course, the quality of the class will depend on whether students are prepared to talk about the readings each week.

Reading Quizzes (20%) – There will be 6 short quizzes spread throughout the course. These quizzes will contain basic questions about the class readings for that day, and are merely meant to check that students have done the reading. They will consist of 1-3 questions, each of which should take no more than 2 sentences to answer. A student's lowest quiz grade will be dropped in calculating his or her quiz average (the remaining 5 count 4% each).

Problem Sets (30%) – There will be 3 required problem sets for this course (10% each), each of which will have students using real data to do empirical exercises in Stata. Students are encouraged to work in small groups (max size 4) on the assignments, though each student is required to write up and submit his or her own version of the solutions. Students must indicate the other students with whom they worked at the top of the problem set.

Note: Stata will *not* be formally taught as part of this course. The instructors will provide students a variety of online materials to help them learn the commands necessary to complete the assignments, and will be available to answer questions in office hours. However, students should expect to work independently to learn the rudiments of the Stata language themselves.

Final Project (40%) – Students will have two options for the final project.

- (1) Policy Memo – The first option is intended for most MA or MPP students. For this assignment, students will be required to carefully read and analyze an empirical study, and relate the findings from the study to other material covered in the class. The goal of this exercise is to give students practice digesting and (importantly) communicating complicated technical material to a general audience. This assignment will not require any additional research beyond the assignment article and readings the student will have done throughout the course. More details (including some example memos) will be distributed toward the end of the class.
- (2) Independent Research Paper – This option is intended primarily to allow doctoral students the opportunity to explore a topic related to their independent research agenda. Course instructors must approve all projects in this category, and will consider whether the project moves the student forward in his or her dissertation or other independent research.

Course Materials

Book chapters and journal articles, all of which will be available through CANVASS.

Readings

Before most classes, we will post several questions about the readings to Canvas. Some of these questions will have "right" answers (e.g. "What population does a given paper study?") while many others will not ("Do you find their identification strategy convincing?"). You don't need to write up or turn anything in (but you may find this helpful to do); just be prepared to speak. Also make sure to bring the readings to class, as we will reference them. As for reading strategy, for the more technical papers a good strategy is to read the abstract, intro, results, conclusions, tables/figures first and see how many of the questions you can answer. Then go back and try to understand it a little bit better.

Software

We will program in Stata, a software program used widely by researchers and policy analysts. Having "Stata" on your resume makes you more employable, so embrace it!

We provide links to online Stata tutorials and offer training in sections. Since there is no computer lab large enough to hold our class, you will rely on your laptops to practice Stata programming during these sections. *You must therefore own a copy of Stata.*

You can get a Stata license for just this semester at a very affordable price. Order through the Stata website (<http://www.stata.com/order/new/edu/gradplans/us-pickup/>) and then pick up at Computer Showcase. You will need to have the most recent version of Intercooled Stata.

Academic Expectations & Resources

Please read the information at the link below for important information on topics such as academic integrity, accommodations for students with disabilities, inclusivity and others. We expect students to be familiar with all of the expectations and resources described herein:

<http://fordschool.umich.edu/academics/expectations>